



# Newsletter

No.32: June 2023

In this edition: entertaining and informative articles from members, items for sale, updates from the flying field for April and May and pictures of a surprising number of crashed aeroplanes!

## KRMFC current committee members are:

Tom Wilson – Chairman

Neil Grayson – Secretary

Mike Hill – Treasurer

Bill McDiarmid – Committee Member

Jim Walsh – Committee Member

Neil Gourlay – Committee Member

Bob Gadd – Honorary Committee Member

## Contacting the Committee

An email address has been created for members to contact the Committee about Club matters. If you have any questions, suggestions or general comments, then please send them to the following email address:

[KRMFCcommittee@gmail.com](mailto:KRMFCcommittee@gmail.com)

## The BMFA in Scotland

Please click on the link below to see how the BMFA & SAA commit to work together for the benefit of all model flyers in Scotland. This joint statement, on behalf of the SAA and BMFA, is being released to members of both Associations as an update on the progress to date between the two organisations on the agreement to 'work together' in Scotland to the mutual benefit of all members.

[Latest Update 13th April 2023](#)

# Models over 7.5kg flying above 400 ft.

We have applied for and been granted a BMFA flying site permit to cover this activity. To comply with this permit, a site risk assessment had to be carried out. One action on the risk assessment necessitated an update to the club rules. The permit, updated rules and the risk assessment were sent out as an attachment to an email dated 12<sup>th</sup> March 2023. The updated rules are also hanging in the club hut. Until our application is registered in the CAA AIP register a NOTAM is required. We applied for a NOTAM starting at the end of March for the year and this is now active. Get your jets out!

The committee would like to ask that all members read the updated rules and comply with them. All members are expected to act as safety officers and ensure that all club rules are followed by all club members. The rules are for each and everyone's safety and must be followed. Should any member have an issue with another member not following the rules then the matter must be reported to a committee member for follow up.

# Flight Controllers *by Ian McLuckie*

In a previous newsletter article, we discussed 'electronic gyros' or MEMS (microelectronic mechanical systems) and how they functioned, based mainly on what I was able to pick up from the internet. Paper printed books (you will remember them) about these devices are like hens' teeth, it's the age we live in. However, manufacturers do produce data sheets for electronic design engineers and software engineers, but I am not part of that elite group so we must work it out for ourselves when it comes to RC-Aero.

From what I gather, our drone and helicopter colleagues are well acquainted with these devices which are fundamental to their control systems. Generally known as 'flight stabilizers' or 'flight directors / controllers'; but some Club members seem to fly 'bare bones', which requires a great deal of skill and they are very good at it. I am still learning to fly simple fixed wing aeroplanes...a Noob! A modern word I do not like, but we have to keep up with the jargon. Anyway, I'll stick to fixed wing aeroplanes and see how these controllers fit into the scheme of things... for us Noobs.

To start, we need to understand what 'flight stabilizers or flight directors / controllers' are. Let's call that element of the system '**FC**' for brevity. The modern receiver is basically a microprocessor usually running at about 100 MHz, handling the incoming digital gigahertz signals with radio frequency hopping. The same

processor sorts out and arranges the signals to the servos.

We all know that, but alone, that is a great piece of engineering and computing, not to be underestimated.

Then there are servos, we all know about them. That seems to be the 'standard system,' as in Fig 1, for us winged flying people at the Club.

So, if in basic terms we want to influence or control the servo's actions to automatically follow some pre-programmed logic (not artificial intelligence (AI) - that's a long way off) on board the aeroplane, there needs to be another 'black box' i.e. the '**FC**'.

Fig 2 shows a typical set up, but some manufacturers build the FC into the radio case saving weight and wiring spaghetti. The FC is yet another microprocessor, it also runs at about 100 MHz

So, what does the FC do? For fixed wing there seems to be two fundamental functions a) 'stabilization' i.e. the FC will compensate for, and resist fluctuations caused by wind gusts for any given control setting by automatically moving the control surfaces and b) 'safe / optimised' which provides hands off control to

allow the aeroplane to adopt straight and level from any orientation. For a Noob that is valuable. These functions are switchable on and off from the transmitter.

As always, it is not that simple. 'Setting up' can be a nightmare if the aeroplane is not ARTF with the FC already glued inside the fuselage sometimes complemented by custom firmware downloaded from the aeroplane maker. Even the download might not be necessary these days.

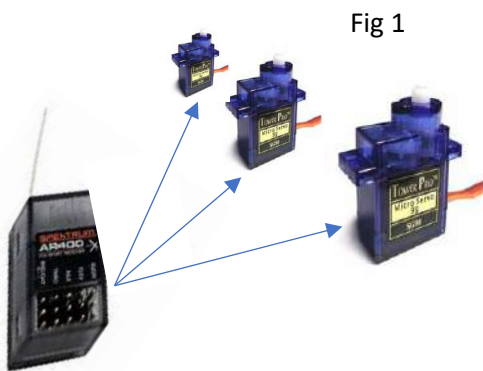


Fig 1

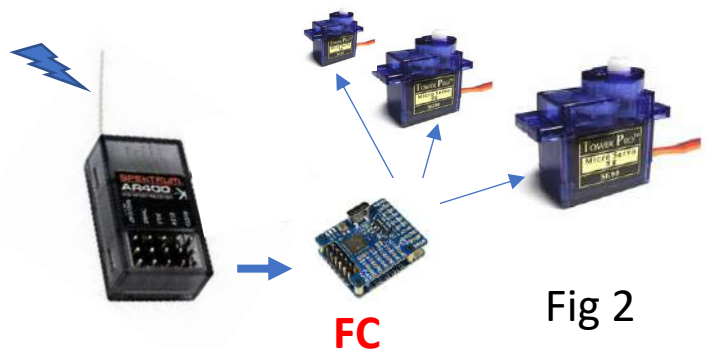


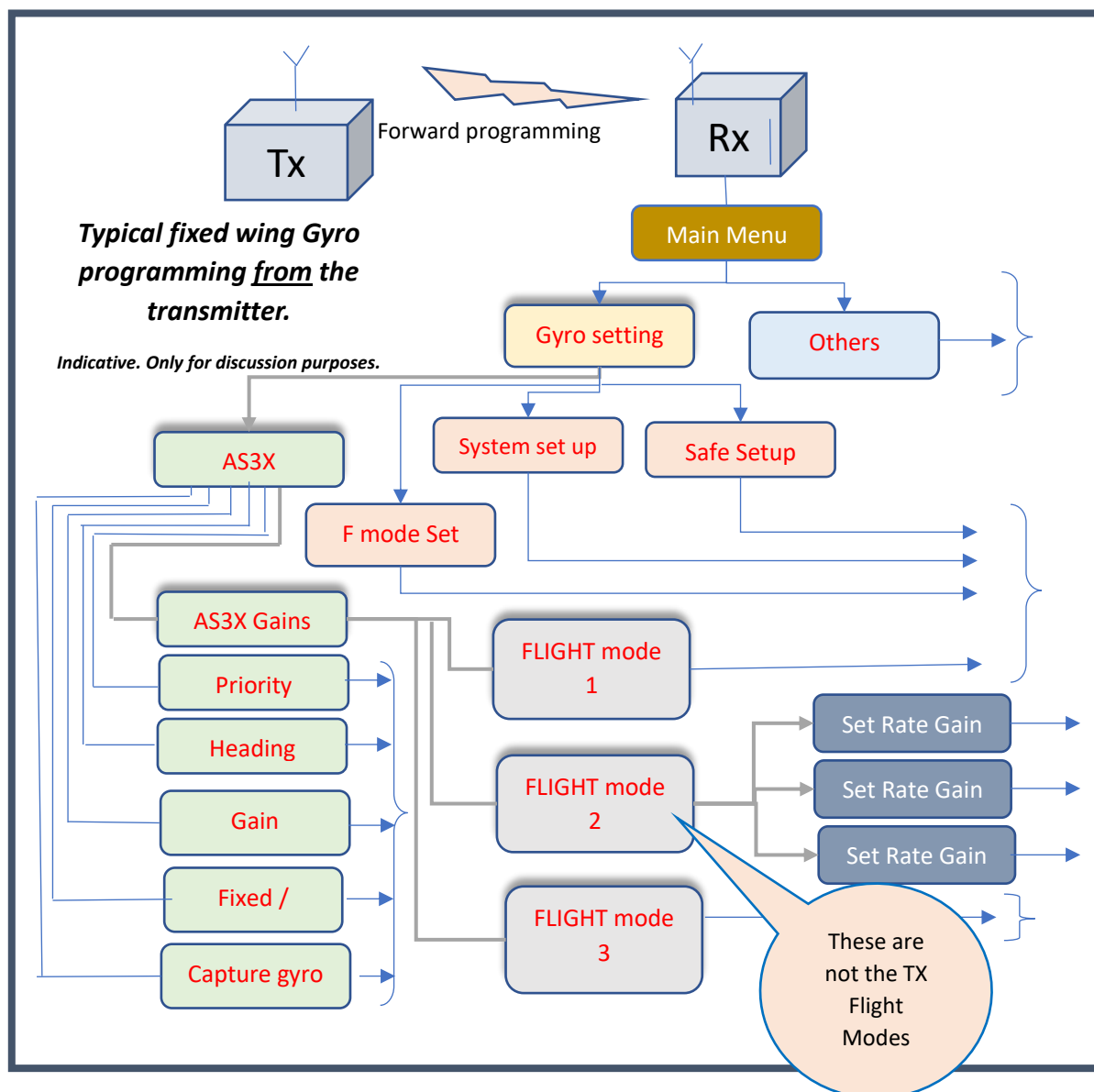
Fig 2

But for us basic laser-cut balsa Noob builders scratching around for a receiver and bits and pieces from any likely source like myself, adding an FC might seem to be a good idea to help us reduce perpetual rebuilds.

First thing... 3 axis, 6 axis or 9 axis? There is no such thing as a 6 axis or 9 axis gyro. For fixed wing, obviously we only have 3 axis to control and I see that some FC providers recommend leaving stabilizing yaw inactive. Essentially, but not absolutely, the 6 and the 9 axis appear to be all about accelerometers, not electronic gyros, and belong mainly to the drone and helicopter family.

But now the fun begins. Once the FC is installed in the aeroplane, its firmware must learn how it is oriented to the aeroplane. You press some buttons, stand the aeroplane on its nose, set it level, you get dizzy, but bingo, the FC knows where the wings are and what is front and back. It's smart, the gyro is aligned and the ducks are in a row. That done, the rest is programming from the transmitter, or laptop with a manufacturer's downloaded 'app.' Always assuming that the spaghetti is correctly connected, and even that is not straightforward.

The programming is daunting for a Noob. Spektrum call it Forward Programming from the transmitter. Very briefly, it goes something like this:-



The above scratches the surface. Without YouTube this stuff is difficult to pick up. The sketch, when fully set out, runs to about seven pages. The flow diagram is not available anywhere, even from Spektrum so it is a do-it-yourself job.

Commissioning is trial and error. Fly it, adjust it, fly again etc. They say you have to be careful with the 'gains'. Set the aileron gain too high and the aeroplane might oscillate and break the rubber bands holding the wings on. I got my rubber bands from Woolworths years ago; I'd better replace them!

One mistake by Spektrum was to give the '**Flight modes**' shown in the illustration as '1,2 & 3' the same **name** as the standard flight modes setup in your transmitter. Confusion is not the first word you might reach for when initially encountering this control set up. They should have called them GYRO Modes to give a three position switch the following settings ...**1 OFF**, **2 Iron out the bumps and turbulence** **3 Iron out the bumps and turbulence and stabilize the aeroplane to level flight in an extreme emergency**. Within settings 2 and 3, the fine-tuning control possibilities are almost infinite, posing the question where do you start.

But none of this flies the aeroplane, the pilot is always in command (PIC).

Do they work? Yes, but it is not an auto pilot, it just irons out the bumps and rights itself if the model inadvertently inverts or enjoys an incipient tail spin. It might save dozens of rebuilding hours following these inevitable crashes and help retain your interest in the hobby. More flying time and it can also save money, especially those outrageous delivery costs from Hong Kong!!...£60 four-day **delivery charge** for a replacement wing worth £16...Ouch!

Let's just call the gyro an added 'gizmo aid' along with expo curves, surface control mixing, altitude variation feedback, flight modes etc. It's all great stuff which might follow on from the buddy-box for beginners, then it can get switched off if not required.

Finally, the gyro provides a panic mode. Press the button or switch and the plane will fly straight and level from any orientation. An important safety feature which might come into its own as the hobby develops.

## New Build – PB Crescent Bullet

Mike Hill sent me pictures of his new kit-built model. He had an OS40 LA sitting about gathering dust so he was looking for a model to fit the engine. He found the Crescent Bullet from Pro Build which was back in production. The Crescent Bullet is a low wing sports model dating from the 70s. It has a 50" wingspan and foam wings which he decided would be a good fit for the engine.

The maiden flight went OK-ish as the model was very twitchy but he managed to get it down OK. The recommended C of G was 80mm from leading edge and the model came out at 75mm. Aileron throw was 8mm each way and he had 10mm. A bit of nose weight and reduced aileron throw transformed the model and it now flies nice and smooth. He just needs to get more time in the air to start to play. Mike points out that it is unusual for one of his models to survive a maiden flight! (Don't ask him about the Mig 3!). We all look forward to seeing it fly again Mike.





# Upcoming Events in Scotland

**Glenrothes Aeromodelling Club**  
Summer Fly-in Sat 10<sup>th</sup> Sun 11<sup>th</sup> June



Come and enjoy a weekend flying with us  
Car Boot model sale on the  
Sunday £5.0 per car  
Raffle  
Toilets Available  
BBQ -- with Hot Food,  
Drink and Snacks available

Camping / Caravans etc.



The Site will be open from :-  
Thursday 8<sup>th</sup> 12am to Tuesday 13<sup>th</sup> 12am  
Water will be available at farm if required Bring some if possible  
Toilet waste disposal available




Contact Details -- for further information 'Tels' 07856331651

**Falkirk Model Flying Club**  
Summer Fly-in  
Sunday 16th July



**DMAC**



**Fly In 2023**

JOIN US FOR A DAY OF FLYING, SOCIALISING AND FOOD  
ON SATURDAY, JULY 8<sup>TH</sup>, BARRY BUDDON FLYING FIELD


PILOT BRIEFING AT 10:00 AM

A SELECTION OF ALL TIME  
FAVOURITE FOODS  
WILL BE AVAILABLE\*


COLD AND HOT DRINKS

ON SITE PARKING

FACILITIES M/F PROVIDED



QUESTIONS/SUGGESTIONS?  
VISIT US ON <https://www.facebook.com/dmcraftclub>  
OR SEE OUR WEBSITE [www.dmcraftclub.com](http://www.dmcraftclub.com)



\*BURGERS, BACON/EGG ROLLS, SWEETS  
WE WILL TRY AND HELP WITH SPECIAL DIETARY REQUIREMENTS. PLEASE LET US KNOW IN ADVANCE.

**Cumbernauld**  
Model Flying club



**3 IN 1 EVENT!**  
**13th August**

**Low Weaver Trophy event**  
We are hosting this event for the Allea model flying club who will be officiating & judging.  
Simple format - bring & fly a scale model & you will be judged only on how scale like your flight is.  
No static judging - bring a rough foamie or museum quality model - you will be judged only on flying!

**CMFC warbird event**  
Again a simple format - bring & fly a warbird & you will be judged only on how scale like and/or exciting your flight is.  
Unique opportunity to enter 2 events at same time on same day!  
Winner will be declared from a vote from everyone entering.

**BRING & BUY**  
This will be held in our car park & you are welcome to set up a table behind your car or van free of charge



**TOILET ON SITE**

## 2023 Waterplane Event Dates

### **Mill Dam**

3<sup>rd</sup> September

### **Loch Leven**

19<sup>th</sup> & 20<sup>th</sup> August

### **Kilbirnie**

23<sup>rd</sup> & 24<sup>th</sup> September

### **Loch Insh**

9<sup>th</sup> & 10<sup>th</sup> September

### **Loch Earn**

24<sup>th</sup> & 25<sup>th</sup> June

26<sup>th</sup> & 27<sup>th</sup> August

21<sup>st</sup> & 22<sup>nd</sup> October

### **Monikie**

November – Dates to be confirmed

December – Dates to be confirmed

## Waterplanes at Kirkgate Park, Kinross 19<sup>th</sup> and 20<sup>th</sup> August

This annual event will be held as usual on the 3<sup>rd</sup> weekend of August, flying from 10am - 4pm both days. Bill McDiarmid has also requested an evening session 6pm - 7:30pm on the Saturday, in case the wind is too strong during the day but calms down in the evening (it often does!). The requested evening session has never been used, yet. Volunteers are requested for setting-up on the Friday afternoon, 18<sup>th</sup> August 4pm - 6pm.

## F3a Competition

This will take place at Kinross on Saturday 3<sup>rd</sup> June 2023. The field will be in use all day but members are encouraged to go along and spectate.



## For Sale

Stuart Houston is selling his recently maiden Max Thrust Pro Built Ruckus. It comes with no electronics but it does have a fuel tank, nitro motor mount (installed), electric motor mount conversion kit, spinner etc. The cowl has been cut away for a nitro motor in various places. It's perfectly useable, it just has holes for the silencer and needle valve. He is asking for £120. Contact him on [flightsoffancy356@gmail.com](mailto:flightsoffancy356@gmail.com) or the Club's WhatsApp Group.



## Kiel Kraft Falcon

Pat Baxter was wondering if anyone would like to buy a Vintage Kiel Kraft Falcon with a 94 inch (2.38 Metre) wing span. It comes with a vintage OS 61 FS with Open Rocker which could do with a bit of a clean but it looks and sounds great in the Falcon. You can tart it up or leave it as vintage style. You would have to install your own receiver and pick up at Kinross. The wing is one piece and 94 inches attached by rubber bands. This is a rare buy at £130. Contact him on [pat.baxter@talktalk.net](mailto:pat.baxter@talktalk.net)





# Radio Control Equipment

Jordan Paterson who lives in Kinross has the following equipment for sale after completing a house clearance. He is looking for offers on any of the equipment. Contact him on 07464135193 or email [Tartanbrothersgroup@gmail.com](mailto:Tartanbrothersgroup@gmail.com)

Tronic Universal Charger. NiCad, NiMh & Li-Ion



Spektrum DX5e Transmitter



Balance Charger with a variety of cables



Car – Tamiya The Boomerang



Techniplus 27Mhz Transmitter for Cars



Car – Tamiya Baja Champ





# Activity at the Field - April

Sunday 2<sup>th</sup> April

The sky was very over cast in the morning but the sun made an appearance later on in the afternoon.

Douglas Fulton was there with two planes and a Thunder Tigre 91 engine he had been testing. The helicopter flyers and Charles were there earlier in the day.



*Douglas Fulton's Planes & engine test rig*



*View across the flight line*

Lyndsey Dickie appeared later in the day. He had a well-used Limbo Dancer with an Irvine 36 engine. He flew it superbly with very slow landings and he could have landed on a chosen blade of grass. Lyndsey also had a jet at the field and was hoping to test the engine but it was indicating a fault so he went back to the Limbo Dancer.

## Saturday 15<sup>th</sup> April

Neil Grayson arrived at 09:30 with no one there. He put up the wind sock and got his planes out. Before anyone else arrived, he flew his Maricardo.

Gavin Orr, a potential club member arrived. Neil and Gavin flew Neil's Eflite Apprentice on a wireless buddy system using a Spektrum DX6 and a DXe. It wasn't correctly set up as they had trouble controlling the plane once control was passed to the student, the plane wanted to head towards the ground. Finally, the issue was sorted on the last battery by staying in beginner mode on the student's transmitter and going to high rate on right hand switch for more control. Gyro on!



New member Stuart Houston and his wife arrived and flew a small helicopter.

Lindsay Dickie and his wife arrived. He had brought along his Limbo Dancer, a turbine jet and an EDF powered plane. He flew the EDF plane which looked and sounded very impressive in the air. Unfortunately, the turbine jet covered the entire length of the runway on take-off but failed to take flight. Slight damage sustained.

Mike Hill was briefly at the field and flew a couple of helicopters.

Ian McLuckie flew his Alpha glider and ran the engine on his self-built but heavily modified Mascot. He got advice about trimming, balance and control throws but he didn't fly it.

## Thursday 20<sup>th</sup> April

Today the Scottish regional finals of the UKROC was held. 3 teams took part; two teams from Dundee High School and a team from Cargilfield School in Edinburgh. It was a cold day but a number of successful flights were made. One of the teams from Dundee High School qualified to go forward to the National Finals at BMFA Buckminster which happened on 17<sup>th</sup> May 2023. For more information go to [UKROC - Home of UK Rocketry Challenge](#)





## Saturday 13<sup>th</sup> May

Billy Hatley was flying his lovely YAK54 but for some reason he lost control and it came down in the west field. A thorough investigation was conducted by Billy before the wreckage was allowed to be moved but there was nothing obvious about what caused the crash.



## Sunday 14<sup>th</sup> May



Today was the mass flying event organised by the BMFA. The big difference this year was that SAA members could also take part. A number of guest flyers turned up from Balbedie and West Calder. There were 8 planes and 3 helicopters in the sky at midday, so we beat last year's record by 1. It was a bit wet and windy before take-off but the heavy rain held off until everyone had landed safely. Many thanks to everyone who attended.

The flyers who took part were: John Laird, Mike Hill, Bill McDiarmid, Jim Walsh, Chris Wardlaw, Raimond Chiappa, Neil Gourlay, Neil Grayson, Tom Wilson, Alex Mackie and Michael Wardlaw.

## Friday 19th May

Neil Grayson's Maricardo collided with the runway after he tried to fly inverted at low level. It was all a bit close, he panicked and pulled the elevator stick back instead of forward and it dived into the runway. A large hole was created in the grass where the engine hit and a smaller hole where the right wing tip met





the ground. The fuselage is easily fixed with a bit of epoxy but the wing could be quite complex as it is foam cored with an obechi veneer and it has snapped in half. Any foam experts out there?



Paul Wasik's plane was a Moonglow which was a plan feature in the November 2018 edition of RCM&E magazine, and is a design from the late 1960s. On his initial flight he managed to line up with the runway after a dead stick but it came down short in the east field. He suspects he ran out of fuel. The plane however was sitting, undamaged on its wheels amongst the farmers first shoots of his crop.

The second flight didn't quite go as well and the plane ended up in a few bits. Paul was trying to do a loop but was a bit low and hit the ground. He says he may buy a new one from Belair kits where he can get all the wing ribs, fuselage formers and the shaped parts are laser cut. It also comes with a plan. He will keep the crashed model as a reference and template which will speed up the build.



## Thursday 25<sup>th</sup> May

The day started overcast and cool but the sun soon came out and it was down to T shirts and suntan lotion. Neil Grayson, Ian McLuckie, Paul Wasik and Derek Grater had the field to themselves today. Paul had a lot of flights with his superbly built Flair Magnatila on his 35Mhz transmitter.

Neil and Ian attempted to fly the reconstructed Mascot which originally belonged to Billy Dunn the previous secretary. Neil rebuilt the front of the Mascot after the wings fell off and then passed it on to Ian. It is now powered by an old OS 52 Four Stroke engine which starts easily and runs well but seems to be lacking in power. A few attempts to take off were made but it kept nosing over to the right and the nose wheel was very wobbly. The nose wheel was turned round and lead weight put on the left wing to try and straighten the take-off run and it eventually took off but then turned to the left, stalled and returned to earth! Ian will try and stabilise the undercarriage and fit an OS 40 2 stroke and try and fly it again.

Neil flew his electric Pro Built balsa Ruckus twice but as he only has one battery he had to wait 45 minutes between flights while the battery charged on his car battery. Luckily his car started when he came to leave the field. In between flights Neil and Ian painted one of the benches.

Tom Wilson has mentioned moving the wing sock pole back to the transmitter shed as it can cause a hazard to flyers trying to land on the runway. Neil was doubtful about the risks involved but Ian proved Tom right when he flew into the pole with his Bixler glider. The glider ended up in 6 pieces but it is fixable. Apologies to Ian and the pole will be moved.



Derek Grater appeared at the field later in the afternoon with his repaired pink Kyosho Calmato. He said that he hadn't been flying this year so far. He attempted a take-off with his plane but it stalled and came down losing the undercarriage. More repairs to do.

## Sunday 28<sup>th</sup> May

A very busy day at the field today. The sun was shining, the wind with light but coming across the runway and it was warm, almost perfect.

Tom Wilson cut the grass whilst Neil Gourlay strimmed the grass around the club hut and the helicopter boxes. It appears that the moles which seemed to have taken delight in digging up the runway during the



winter had gone somewhere else. Perhaps it was the pickled onions that Bill McDiarmid put down their holes!



The helicopter benches were full of rotor driven craft with a stream of helicopters being put through their paces from the west pilot box.

Neil Grayson and new member Gavin Orr were flying buddy box with Gavin's Apprentice. Take off was a little tricky with the crosswind and there was even a hand launch performed. Dave Kelly suggested taking off across the runway instead of along it which worked better. Four good flights were made with Gavin taking off each time and practicing runway approaches and landings. Flying only stopped when the Apprentice came down off the runway near the wind sock pole in the rough grass snapping off one of the propeller blades.

Dave Kelly and Lindsay Dickie got a little competitive with their Limbo Dancers chasing each other round the sky and performing some synchronised flying. The final game they played was to run out of fuel at great height and glide for as long as possible before having to land dead stick. At one stage Dave's Limbo Dancer was so high it could barely be seen amongst the clouds.

Bill McDiarmid arrived at the field later in the afternoon and flew his second-hand Riot which he bought from Jordan Paterson. (see advert in the sales section). Neil Grayson also flew his second-hand Apprentice which came from Jordan as well.

A number of potential new members appeared, to say hello and see what was going on at the field.

It appears that the last member to arrive at the field today was Stuart Houston. He posted this picture on WhatsApp of his Seagull Challenger taken at 18:08 with the plane and the weather looking superb!



*Stuart's Seagull Challenger*

## Newsletter Feedback and Contributions

Please let me know of anything you would like to see included in the Newsletter. Also, any feedback is much appreciated. If anything interesting happens whilst you are visiting the flying field then send me an email (with pictures) for the Activities at the Field section. Articles are always needed and are a very popular read. Members are interested in how you got into the hobby, what planes you have owned, technical expertise etc...

The next newsletter will be issued sometime after 1<sup>st</sup> August due to holidays and other commitments. The Email address for articles is: [neilgrayson@sky.com](mailto:neilgrayson@sky.com)

## Web Links and Shops

**(Any suggestions of other shops you have used let me know)**

Model Shop Leeds - [www.modelshopleeds.co.uk/](http://www.modelshopleeds.co.uk/)

Wheelspin Models - [wheelspinmodels.co.uk](http://wheelspinmodels.co.uk). Free postage for orders over £100

Sussex Model Centre - [www.sussex-model-centre.co.uk](http://www.sussex-model-centre.co.uk)

The Vintage Model Company - [www.vintagemodelcompany.com](http://www.vintagemodelcompany.com)

Kings Lynn Model Shop - [www.kingslynnmodelshop.co.uk](http://www.kingslynnmodelshop.co.uk)

Scoonies - [www.scoonie-hobbies.co.uk](http://www.scoonie-hobbies.co.uk). Don't bother with the website. Visit the shop in Kirkcaldy.



87 St Clair St, Kirkcaldy KY1 2NW. Tel No: 01592 651792

Dens Model Supplies - [www.densmodelsupplies.co.uk](http://www.densmodelsupplies.co.uk). Excellent for spares for vintage Cox engines.

Hobby King - [hobbyking.com/](http://hobbyking.com/)

WestonUK – [www.westonuk.co.uk](http://www.westonuk.co.uk) Good value fuel in large quantities. Over 20 Litres (4 Gallons) gives you free postage.

ACCU – [www.accu.co.uk](http://www.accu.co.uk). Excellent for bolts, screws and washers. Will take requests for bespoke items.

RCM&E - [RCM&E Home Page](#). The website of the best aeromodelling magazine. If you have a question the forum is bound to have an answer.

RC Thoughts - <https://www.rc-thoughts.com/> Finnish website of Tero Salminen. Phoenix Simulator Downloads and updates.

RC World - [www.rcworld.co.uk](http://www.rcworld.co.uk). Located in South Wales between Cardiff and Newport. Stock values on each product are displayed which reflect what are physically in stock, not held at a suppliers warehouse. Derek Grater has used and recommends.

Carbon Copy - [Carbon Copy \(carboncopyuk.com\)](http://carboncopyuk.com). Located in Stevenage. A wide selection of Carbon and Fibreglass parts. Ideal for undercarriages, cowlings and canopies.

Just Engines - <https://www.justengines.co.uk/>. Located in Shaftesbury, Dorset. A wide range of engines and spares. If you can't find what you want on the website send them an email or call.

SLEC Manufacturing (Sun Lane Engineer Company) - [SLEC UK Ltd](#). A good range of accessories but also a large range of balsa and hardwoods. Also available is a laser cutting and CNC milling service.

Component Shop - [Home page \(componentshop.co.uk\)](http://componentshop.co.uk). Based in North Wales. A great range of batteries, leads and electronics.

Here's a link to the glider field weather station data at Portmoak gliding club which is just a few miles east of our field. It gives a lot of information including wind, temperature and air pressure. [Portmoak Weather Station](#)

## The Committee